MONTHLY WEATHER REVIEW.

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INTRODUCTION.

This REVIEW contains a general summary of the meteorological conditions which prevailed over the United States and Canada during December, 1884, based upon the reports from the regular and voluntary observers of the Signal Service and from co-operating state weather services.

Descriptions of the storms which occurred over the north Atlantic ocean during the month are also given, and their approximate paths shown on chart i.

The month was unusually cold over the northwestern part of the United States, the departures below the normal temperature amounting to from 10° to 23° from Dakota westward to the Pacific. Along the Atlantic and Gulf coasts the mean temperatures were slightly above the normal.

The weather was very severe during the last half of the month from Minnesota westward to the Pacific coast, attended in Oregon and Washington Territory by unusually heavy snowfalls, causing much loss of life and property.

The precipitation was excessive in nearly all portions of the country, the exceptions being the north Pacific coast region and the Rio Grande valley. In the west Gulf states and California it was unusually heavy and resulted in destructive freshets.

On chart i. the tracks of eight barometric depressions are traced; the average number for December during the last ten years is thirteen, or five more than for December, 1884.

In the preparation of this REVIEW the following data, received up to January 20th, 1885, have been used, viz.: the regular tri-daily weather-charts, containing data of simultaneous observations taken at one hundred and twenty-nine Signal Service stations and seventeen Canadian stations, as telegraphed to this office; one hundred and fifty-six monthly journals and one hundred and sixty monthly means from the former, and seventeen monthly means from the latter; two hundred and sixty-six monthly registers from voluntary observers; forty-two monthly registers from United States Army post surgeons; marine records; international simultaneous observations; marine reports, through the co-operation of the "New York Herald Weather Service;" abstracts of ships' logs, furnished by the publishers of "The New York Maritime Register;" monthly reports from the New England Meteorological Society, and from the local weather services of Alabama, Illinois, Indiana, Iowa, Louisiana, Minnesota, Missouri, Nebraska, Ohio, and Tennessee, and of the Central Pacific Railway Company; trustworthy newspaper extracts; and special reports.

ATMOSPHERIC PRESSURE.

[*Expressed in inches and hundredths.*]

The distribution of mean atmospheric pressure over the United States and Canada, as determined from the tri-daily telegraphic observations of the Signal Service, is shown by the isobarometric lines on chart ii.

An area of barometric maxima is shown over the upper Missouri valley and the northern and eastern portions of Montana, the highest barometric mean, 30.32, being reported from Fort Buford, Dakota, and Poplar River, Montana. A small area, including portions of Dakota and eastern Montana, is inclosed by the isobar for 30.3, while that for 30.25 is traced from near Minnedosa, British America, southeastward to southeastern Dakota, and thence northwestward to the northern boundary of Montana to the west of Fort Benton. The mean pressure is least over southwestern Arizona and southern California and along the coasts of southern Oregon and northern California. The lowest barometric means, 29.91 and 29.93, are reported from Cape Mendocino, California, and Yuma, Arizona, respectively.

As compared with the mean pressure for the preceding month (November) a line connecting the stations where no change has occurred extends from the northwestern boundary of Montana southeastward to the east Gulf coast. To the eastward of the line mentioned an increase has taken place, while to the westward there has been a marked decrease. The increase is greatest in the extreme northwest, the Saint Lawrence valley, and northern New England, where it varies from .10 to .18. Over the central Rocky mountain districts the decrease has been unusually large. The area of barometric maxima which was shown in this region on the chart for November has apparently moved to the northward, and its position is now occupied by an area of comparatively low barometric readings. The following stations report the most marked departures as compared with November: Salt Lake City, Utah, .31; Denver, Colorado, .21; Boisé City, Idaho, .20; Cheyenne, Wyoming, .18. Over nearly the entire country to the west of the line of no change, as compared with the November means, the deficiencies exceed .10.

The departures from the normal pressure for December are given in the table of miscellaneous meteorological data, and are also exhibited on chart iv. by lines connecting stations of equal departure. The normal line extends from northwestern Montana southeastward to the central Ohio valley, and thence southward to Jacksonville, Florida. To the northward of this line the mean pressure is above the normal, except over a small area in the upper lake region, where it is normal. The departures exceed .05 in central-northern Montana, in eastern Dakota, Minnesota, New England, and portions of the middle and south Atlantic states, but with the exception of .10 at New London, Connecticut, they vary from .05 to .08. To the southward of the normal line above mentioned the mean pressure is below the normal, the departures being decided over the middle plateau and middle Pacific coast regions, where they vary from .15 to .22.

BAROMETRIC RANGES.

The monthly barometric ranges were greatest in the districts from the upper Mississippi valley eastward to the New England coast, and least along the southern borders of the country; they exceeded 1.00 in the northern plateau, north Pacific coast region, and east of the one hundredth meridian, north of latitude 37°. The largest monthly ranges are: 1.50 at Eastport, Maine; 1.46 at Portland, Maine; 1.39 at Rochester and Oswego, New York; 1.39 at Grand Haven, Michigan. The smallest are: .29 and .43 at Key West and Sanford, Florida, respectively. The monthly ranges for the several stations of the Signal Service are given in the table of miscellaneous meteorological data.